

this area of but slight energy, the pressure at Japanese stations remained almost stationary, accompanied by southerly winds. No. XVII.—On the 28th the barometer began to fall at all stations along the China coast south of Peking, accompanied by southerly winds, with fair to threatening weather. 29th, central west-southwest of Peking; barometer, 29.50, calm, rain; Zi-Ka-Wei, 29.59, E. fair. 30th, central south of Peking, course southeastward, barometer 29.43, N. fair; Zi-Ka-Wei, 29.54, NE. cloudy. 31st, central over the Yellow Sea, course eastward; Peking, 29.55, calm; Zi-Ka-Wei, 29.36, WSW. threatening; at other stations further south along the China coast the winds shifted southwest and west with rising barometer. Over the Japan Islands the pressure rose slightly with southeast to southwest winds. A further consideration of this storm will probably appear in the *July REVIEW*.

Ocean Ice.—Steamers *Nestorian*, *Mississippi*, *Riverdale* and *Quebec*, June 16th, reported large quantities in the Straits of Belle Isle, compelling the two last named vessels to take more southern passage. Schooner *Reuben*, J. Hart, master, bound from Conception Harbor for Labrador, struck huge ice-floe, on night of June 16th, two miles ENE. of Gull Island, off Cape John. Schooner *Trust*, June 20th, reported heavy ice-floes as far south as the Gravois Islands, off the mouth of White Bay; also an impenetrable wall of ice all along the Labrador coast, turning out to the eastward in latitude 53°, N. Steamer *Iceland* reported, June 21st, heavy ice-floe along the south coast of Labrador. Whole fleet of Newfoundland fishing vessels were arrested in their course northward by a heavy body of ice extending as far south as the White Bear Islands. Yacht *Hoidfiske* reported, May 24th, that during passage from Tromsø to Spitzbergen encountered such quantities of ice that voyage could not be made; vessel compelled to return. The captain stated that the ice was setting steadily toward the Russian and Siberian coasts, and instead of new ice he considered that it was the old pack ice of the past winter. The following data is taken from the "Weekly Chart of Floating Dangers," published by F. Wyneken, New York City: April 19th, iceberg passed in 43°, 25' N., 52°, 25' W., by S. S. *Donau*. May 2nd, immense fields of ice reported off Cape Breton Island. May 10th, bark *Gannaque* collided with iceberg four miles from Bird Rocks, Magdalen Islands. April 14th, S. S. *Halsbury*, in 47°, 21' N., 48°, 54' W., encountered iceberg 80 feet high and heavy drift ice. May 27th, an immense ice-pack, with numerous icebergs of gigantic size, was reported from St. John's, Newfoundland, as passing the eastern coast of that island in a southerly direction, having probably reached latitude 46°, 30' N., on that date. May 22nd, S. S. *Razoni* collided with heavy ice-floe 40 miles SE. of Gull Island, off Cape John. May 27th, S. S. *Olympia* passed several small icebergs in 42°, 55' N., 50°, 45' W.

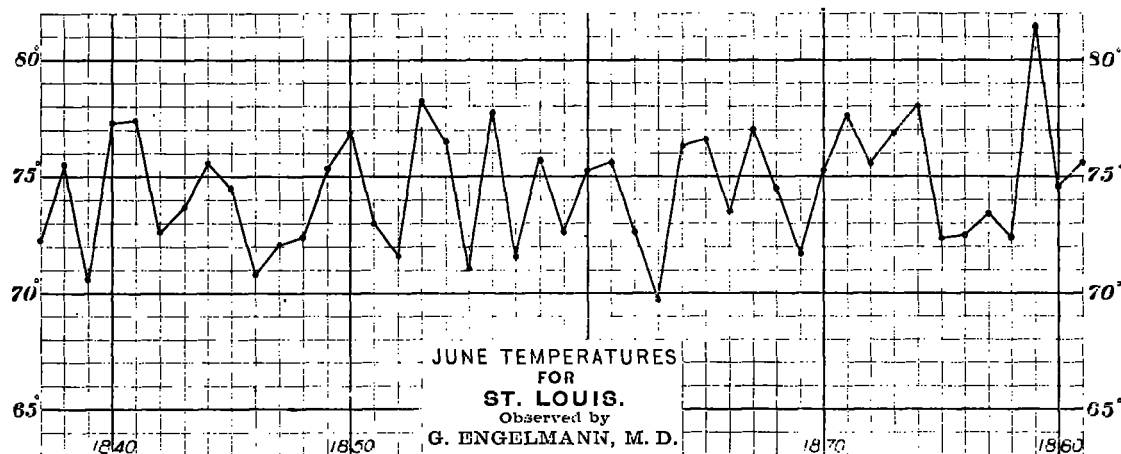
TEMPERATURE OF THE AIR.

The mean temperature of the air for June, 1881, is shown by the isothermal lines (in red) on chart No. II. The table of mean and comparative temperatures in the right hand corner of the chart shows, in the first column, the average for the month throughout the various districts, as deduced principally from observations taken at Signal Service stations. In the two remaining columns are shown the means for the present month, and the departures of such means from the average for many years. From Lake Superior southeastward to North Carolina, and thence northeastward to the Canadian Maritime Provinces, the temperature is from 2°.7 to 4°.4 below the normal; over the northern half of the Pacific coast, and in the Northern Plateau district, from 1°.3 to 3°.1 below the normal. Elsewhere in the various districts the temperature is from 0°.4 to 5°.1 above the normal, except in the Upper Mississippi valley and South Pacific coast region, where no change is recorded. Mt. Washington is 5°.3 below; Pike's Peak, 7°.4 above, and Salt Lake City, 3°.0 above.

Ranges of Temperature at Signal Service Stations.—Monthly ranges in general varied from 35° to 45° over the country east of the Rocky Mountains, and from 40° to 55° to the westward of that region. The *smallest ranges* were: Key West, 20°; Galveston, Punta Rassa and San Francisco, 21°; San Diego, 23°; Brownsville, Tex., 24°; Cedar Keys, Indianola and Port Eads, 25°; New Orleans, 26; Cape Hatteras, New Shoreham and Eastport, 29°; Cape May, 30°. The *largest* were: Florence, Ariz., 69°; Campo, Cal., 67°; Ft. Davis, Tex., and Ft. Verde, Ariz., 62°; Missoula, Mont., 61°; Ft. Meade, Dak., and El Paso, Tex., 59°. The *daily ranges* varied in the different districts as follows: New England, from 19° at Wood's Holl and New Shoreham to 31° at Boston, Burlington and Springfield; Middle Atlantic states, 18° at Delaware Breakwater to 27° at Washington and 34° at Norfolk; South Atlantic states, 19° at Macon to 26° at Charlotte and Augusta and 27° at Kittyhawk; Eastern Gulf states, 16° at Key West to 22° at Montgomery and 24° at Mobile; Western Gulf states, 16° at Port Eads and Galveston to 22° at Vicksburg and 25° at Little Rock; Rio Grande valley, 22° at Brownsville to 34° at Eagle Pass and Rio Grande City; Ohio valley and Tennessee, 23° at Cincinnati to 28° at Indianapolis and Pittsburg and 29° at Nashville; Lower Lake region, 21° at Toledo to 29° at Buffalo and 35° at Rochester; Upper Lake region, 21° at Grand Haven to 35° at Marquette and 43° at Milwaukee; Upper Mississippi valley, 22° at La Crosse to 28° at Des Moines and 30° at St. Paul; Missouri valley, 27° at Leavenworth to 31° at Yankton and 44° at Ft. Bennett; Extreme Northwest, 30° at Moorhead to 34° at Ft. Buford and 37° at St. Vincent; Northern Slope, 38° at Deafwood and Ft. Keogh to 43° at North Platte and 48° at Ft. Benton; Middle Slope, 25° on summit at Pike's Peak to 38° at Denver and

46° at Ft. Elliott; Southern Slope, 33° at Ft. Sill, Jacksboro and Ft. Griffin to 55° at Ft. Davis and 56° at McKavett; Northern Plateau, 35° at Lewiston to 44° at Missoula and 47° at Eagle Rock; Middle Plateau, 15° at Winnemucca to 33° at Pioche and 34° at Salt Lake City; Southern Plateau, 23° at La Mesilla to 54° at Tucson and 67° at Florence; North Pacific coast, 29° at Portland to 33° at Roseburg and Olympia; Middle Pacific coast, 18° at San Francisco to 32° at Sacramento and 35° at Red Bluff; South Pacific coast, 18° at San Diego to 40° at Visalia and 62° at Campo.

Deviations from Mean Temperatures.—Under this heading departures exhibited by the reports from the regular Signal Service stations are shown in the table of comparative temperatures on the right hand side of chart No. II. The following items of importance in connection with this subject are reported by voluntary observers: *Canada:* Montreal, McGill College, mean temperature 4° below that of past 6 years. *Connecticut:* Southington, mean temperature 7° below that of past 11 years; highest mean, 72°.7, occurred in 1870; lowest, 63°.5, in 1878. *Illinois:* Riley, mean temperature 2°.3 below that of past 20 years, and 0°.5 below that of the preceding month of May. *Maine:* Gardiner, mean temperature 5°.18 below that of past 45 years; in no month of June during that period has the maximum temperature been as low as that for 1881, and in only one year, 1839, (minimum 33) has the minimum reached that of 1881. *Maryland:* Fallston, mean temperature 3°.4 below that of past 10 years; highest mean, 72°.6, occurred in 1874; lowest, 68°.2, in 1878; the mean for the present month is lower than that for any June in the past 10 years. *Massachusetts:* Worcester, coldest June since 1839. *Missouri:* St. Louis, "Missouri Weather



Service" reports mean temperature 1°.3 above that of past 45 years; highest maximum, 101°.5, occurred in 1870; lowest minimum, 43°, occurred in 1838 and 1839. The above diagram shows the curve of mean temperatures for June, as furnished by Prof. T. E. Nipher, of the "Missouri Weather Service." *Nebraska:* Lincoln, "Nebraska Weather Service" reports mean temperature about 3° above the average. *New Hampshire:* Contoocookville, mean temperature nearly 6° below that of past 11 years, and 3°.3 lower than the lowest mean for any June during that period; coldest June occurred in 1878. Auburn, coldest June for many years. *New York:* North Volney, mean temperature 6°.9 below that of past 12 years; coldest June during that period occurred in 1869, mean 62°.4; warmest occurred in 1870, mean 71°.6. Palermo, mean temperature 6°.8 below that of past 28 years. Ardenia, month unusually cold. Waterburg, mean temperature 4°.5 below that of past 10 years. *Virginia:* Wytheville, mean temperature 1° below that of past 18 years; highest maximum, 92°, occurred in 1872; lowest minimum, 42°, occurred in 1880.

High Temperatures.—New Orleans, during the week ending June 18th highest maximum temperatures in past 43 years; 12th, 91°; 13th, 92°; 14th, 95°; 15th, 94°; 16th, 96°; 17th, 92°; 18th, 91°. Sunstrokes were numerous on the following dates; 14th to 17th, 21st, 23d, 25th to 27th. Laborers ceased work on 25th on account of extreme heat. Carthage, Mo., 10th, temperature 104° in the shade; all workmen on the Missouri Pacific Railroad compelled to quit labor. North Platte, 28th, temperature 94°; one case of sunstroke; first ever known here. Mobile, 15th, sunstrokes reported; 24th, business suspended on account of heat.

Frosts.—With the exception of Highlands, N. C., on the 5th, no station east of the 100th meridian and south of parallel 40° reported their occurrence. They were reported from New England and the northern portion of the Middle Atlantic states on the following dates: 2d, 5th to 7th, 15th, 16th, 21st to 24th; Lake region, 2d, 5th, 11th, 21st to 24th; Middle Rocky Mountain slope, 3d, 8th, 19th, 22d, 23d, 24th; Northern Plateau, 15th, 16th, 21st, 22d; Middle Plateau, 7th, 8th, 10th, 20th, 21st, 22d; North Pacific coast region, 8th; southern California, 4th, 11th, 18th, 19th, 20th, 21st, 29th. They were reported as injurious to vegetation from various localities as follows:

Eagle Rock, 16th; Escanaba, 6th; Port Huron, 5th, 6th, 10th, 21st, 23d; Oswego and Mt. Washington, 7th; Thornville, Mich., 6th, 21st, 22d, 24th; Friendship, N. Y., 22d; Dyberry, Pa., and Port Jervis and Watertown, N. Y., 7th; Coalville, Utah, 22d.

Ice.—The only station reporting its formation during the month was Mt. Washington on the following dates: 3d, 4th, 5th, 6th.

Table of Maximum and Minimum Temperatures for June, 1881.

State or Territory.	Signal Service.			U. S. Army Post Surgeons or Voluntary Observers.			State or Territory.	Signal Service.			U. S. Army Post Surgeons or Voluntary Observers.		
	Station.	Max.	Min.	Station.	Max.	Min.		Station.	Max.	Min.	Station.	Max.	Min.
Alabama.....	Montgomery.....	108°	61°	Green Springs.....	60°		Missouri.....				Sedalia.....		51°
Arizona.....	Florence.....	113°	44°	Maricopa.....	113°		Montana.....	Fort Keogh.....	104°				
Arkansas.....	Little Rock.....	97°	65°				Do.....	Fort Benton.....	98°	27°			
California.....	Visalia.....	103°		Ft. Yuma.....	110°		Nebraska.....	Omaha.....	98°		Lincoln.....	108°	
Do.....	Campo.....		30°				Do.....	North Platte.....	49°				
Colorado.....	Denver.....	93°		Ft. Lyon.....	105°		Nevada.....	Winnemucca.....	93°	34°	Halleck.....	108°	
Do.....	Pike's Peak.....		20°				Do.....				Battle Mountain.....		26°
Connecticut.....	New Haven.....	80°	42°				N. Hampshire.....	M. Washington.....	98°	16°	Antrim.....	97°	
Dakota.....	Ft. Meade.....	103°		Ft. Peñita.....	37°		New Jersey.....	Atlantic City.....	93°		Vineland.....	94°	
Do.....	Deadwood and Ft. Stevenson.....		42°				Do.....	Barneget.....	48°		Freehold.....		47°
Delaware.....	Breakwater.....	89°	55°	Dover.....	90°		New Mexico.....	La Milla.....	108°		Ft. Wingate.....		41°
Dist. Columbia.....	Washington.....	94°	54°				Do.....	Sante Fé.....	43°				
Florida.....	Jacksonville.....	96°		Houston.....	100°		New York.....	Rochester.....	89°		Madison B'ks.....		31°
Do.....	Pensacola.....		64°	St. Augustine.....	62°		Do.....	Buffalo.....	42°				
Georgia.....	Augusta.....	102°		Forsyth.....	104°		North Carolina.....	Charlotte.....	97°	55°	Weldon.....	99°	
Do.....	Atlanta.....		56°	M'Pherson Bks.....	53°		Do.....	Cincinnati.....	94°		Highlands.....		46°
Iowa.....	Des Moines.....	96°		Guttenburg.....	100°		Do.....	Cleveland and Toledo.....	46°		College Hill.....	100°	
Do.....	Dubuque and Davenport.....		51°	Muscatine.....	40°		Do.....	Umatilla.....	94°		Westerville.....		43°
Idaho.....	Ft. Lapwai.....	97°					Do.....	Roseburg.....	41°				
Do.....	Eagle Rock.....		35°				Pennsylvania.....	Pittsburg.....	90°	48°	Philadelphia.....	96°	
Illinois.....	Cairo.....	95°		Swanwick.....	97°		Do.....				Franklin and Wellsboro.....		32°
Do.....	Champaign.....		48°	Riley.....	43°		Do.....						
Indiana.....	Indianapolis.....	92°	48°	Laconia.....	90°		Rhode Island.....	Newport.....	82°	45°			
Do.....				Spiceland.....	46°		South Carolina.....	Charleston.....	97°	64°			
Indian Ty.....	Fort Sill.....	105°					Tennessee.....	Memphis.....	100°				
Do.....	Fort Supply.....		50°				Do.....	Knoxville.....	53°				
Kansas.....	Leavenworth.....	97°	57°	Ft. Wallace.....	104°	42°	Texas.....	Fort Davis.....	111°	9°	Camp near Presidio.....	114°	
Kentucky.....	Louisville.....	95°	54°	Bowling Green.....	96°		Utah.....	Salt Lake City.....	96°	47°	Promontory.....	102°	
Louisiana.....	Shreveport.....	102°	86°				Do.....				Coalville.....		31°
Maine.....	Portland.....		81°	Corinth.....	82°		Do.....				Charlotte.....	89°	
Do.....	Eastport.....		38°	Ft. Preble.....	36°		Vermont.....	Burlington.....	84°	38°	Woodstock.....		31°
Maryland.....	Baltimore.....	92°	55°	Cumberland and Emmitsburg.....	50°		Do.....	Norfolk.....	89°		Wytheville.....		44°
Do.....				Somerset.....	21°		Do.....	Fort Myer.....	48°				
Massachusetts.....	Boston.....	86°		South Lee.....	33°		Washington Ty.....	Colfax.....	91°				
Do.....	Thatcher's Island.....		0°	Northport.....	92°		Do.....	Dayton.....	36°				
Michigan.....	Detroit.....	86°					West Virginia.....	Morgantown.....	82°	49°			
Do.....	Marquette.....		31°				Do.....				Helvetia.....	86°	
Minnesota.....	St. Paul.....	92°					Do.....				Flemington.....		42°
Do.....	St. Vincent.....		37°				Wisconsin.....	La Crosse.....	92°		Mission House.....		42°
Mississippi.....	Vicksburg.....	101°	69°	Fayette.....	68°		Do.....	Milwaukee.....	44°				
Missouri.....	St. Louis.....	96°	53°	Brownsville.....	104°		Wyoming.....	Cheyenne.....	97°	43°	Ft. Fetterman.....	102°	
							Do.....				Ft. Bridger.....		28°

PRECIPITATION.

The general distribution of rain-fall for June, 1881, is shown on chart No. III, from the reports of over 500 stations. From the table in the left hand corner of the chart is obtained a monthly average for each of the various districts, determined from the records (covering a period of many years) of Signal Service stations, and also a comparison of the present month with such averages. Upon examination of the chart and a comparison with the records of June for previous years, there is found a marked deficiency over the southern half of the country east of the 100th meridian. Other deficiencies are found in the Lower Missouri valley, Minnesota and Upper Lakes. The greatest deficiency occurred in the West Gulf states and Texas, where (particularly in the latter) a period of almost unprecedented drought occurred. There was a marked deficiency in the South Atlantic states, —2.40 inches, but no reports of special suffering from drought are at hand. The excess of rain-fall was most marked from Canada southeastward to the Atlantic, over a portion of which region exceedingly heavy floods occurred. Slight excesses were reported in the Ohio, Upper Mississippi and Upper Missouri valleys, although there were many isolated cases of unusually heavy rain-falls. Along the Pacific coast the range is from normal in the South Pacific region to +1.34 inches in the North Pacific region.

In connection herewith the following notes from voluntary observers are of interest: *Canada:* Montreal, McGill College, monthly rain-fall 1.62 inches below mean of past 6 years. *Illinois:* Riley, rain-fall 1.60 above mean of past 20 years, and has only been exceeded three times during that period, viz.: in 1865, 1868 and 1869. *Iowa:* Clinton, monthly rain-fall above the mean for many years; month remarkable for unusually heavy rains. Ft. Madison, month very wet. *Maine:* Gardiner, monthly rain-fall 0.12 below mean of past 45 years; first 25 days of month very dry. *Maryland:* monthly rain-fall above the mean for past 10 years. *Missouri:*